



Billing Code 4910-13

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA-2019-0312; Special Conditions No. 25-755-SC]

Special Conditions: Mitsubishi Aircraft Corporation Model MRJ-200 Airplane; Airplane Electronic-System Security Protection from Unauthorized Internal and External Access.

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for the Mitsubishi Aircraft Corporation (Mitsubishi) Model MRJ-200 airplane. This airplane will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes. This design feature is avionics that allow internal and external connection to previously isolated data networks, which are connected to systems that perform functions required for the safe operation of the airplane. This feature creates a potential for unauthorized persons to access the aircraft-control domain and airline information-services domain, and presents security vulnerabilities related to the introduction of computer viruses and worms, user errors, and intentional sabotage of airplane electronic assets (networks, systems, and databases). The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: This action is effective on Mitsubishi on [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]. Send comments on or before [INSERT DATE 45 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: Send comments identified by Docket No. FAA-2019-0312 using any of the following methods:

- *Federal eRegulations Portal:* Go to <http://www.regulations.gov/> and follow the online instructions for sending your comments electronically.
- *Mail:* Send comments to Docket Operations, M-30, U.S. Department of Transportation (DOT), 1200 New Jersey Avenue, S.E., Room W12-140, West Building Ground Floor, Washington, DC, 20590-0001.
- *Hand Delivery or Courier:* Take comments to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, S.E., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- *Fax:* Fax comments to Docket Operations at 202-493-2251.

Privacy: The FAA will post all comments it receives, without change, to <http://www.regulations.gov/>, including any personal information the commenter provides. Using the search function of the docket Web site, anyone can find and read the electronic form of all comments received into any FAA docket, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, etc.). DOT's complete Privacy Act Statement can be found in the *Federal Register* published on April 11, 2000 (65 FR 19477-19478).

Docket: Background documents or comments received may be read at <http://www.regulations.gov/> at any time. Follow the online instructions for accessing the docket or go to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, S.E., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Varun Khanna, Airplane and Flight Crew Interface Section, AIR-671, Transport Standards Branch, Policy and Innovation Division, Aircraft Certification Service, Federal Aviation Administration, 2200 South 216th Street, Des Moines, Washington 98198; telephone and fax 206-231-3159; e-mail varun.khanna@faa.gov.

SUPPLEMENTARY INFORMATION:

The substance of these special conditions previously has been published in the *Federal Register* for public comment. These special conditions have been derived without substantive change from those previously issued. It is unlikely that prior public comment would result in a significant change from the substance contained herein. Therefore, the FAA has determined that prior public notice and comment are unnecessary, and finds that, for the same reason, good cause exists for adopting these special conditions upon publication in the *Federal Register*.

Comments Invited

We invite interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data.

We will consider all comments we receive by the closing date for comments. We may change these special conditions based on the comments we receive.

Background

On August 19, 2009, Mitsubishi applied for a type certificate for their new Model MRJ-200 airplane. This airplane is a twin-engine, transport category airplane with a passenger-seating capacity of 92 and a maximum takeoff weight of 98,767 pounds.

Type Certification Basis

Under the provisions of title 14, Code of Federal Regulations (14 CFR) 21.17, Mitsubishi must show that the Model MRJ-200 airplane meets the applicable provisions of part 25, as amended by amendments 25-1 through 25-141.

If the Administrator finds that the applicable airworthiness regulations (i.e., 14 CFR part 25) do not contain adequate or appropriate safety standards for the Mitsubishi Model MRJ-200 airplane because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same novel or unusual design feature, these special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the Mitsubishi Model MRJ-200 airplane must comply with the fuel-vent and exhaust-emission requirements of 14 CFR part 34, and the noise-certification requirements of 14 CFR part 36.

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with § 11.38, and they become part of the type certification basis under § 21.17(a)(2).

Novel or Unusual Design Features

The Mitsubishi Model MRJ-200 airplane will incorporate the following novel or unusual design feature:

The installation and activation of electronic network system architecture equipment that allows access from internal and external sources (e.g., wireless devices, Internet connectivity) to the airplane's internal electronic components.

Discussion

Current aircraft communication designs are beginning to adopt Ethernet switch technology and Avionics Full-Duplex switched Ethernet (AFDX) data networking using commercial products. Transmission Control Protocol/Internet Protocol (TCP/IP) is an industry-standard platform used for passenger flight information and in-flight entertainment systems in a way that is separated physically and logically from flight-critical systems. However, a gateway technology that can connect networks with different communication standards allows connection between avionics assets (such as functions or items) with passenger flight information and in-flight entertainment systems. These systems may also be connected to the ground worldwide Internet through a satellite-communication service provider.

Additionally, for the purpose of data uploading for aircraft avionics systems, networks, and maintenance operations, external access is possible from the operator's and airplane manufacturer's servers through a cellular radio network.

The Japan Civil Aviation Bureau (JCAB) is the certificating authority for the Mitsubishi Model MRJ-200 airplane, and the FAA is the validating authority. Typically, the FAA issues separate special conditions for “Airplane Electronic-System Security Protection from Unauthorized Internal Access” and “Electronic-System Security Protection from Unauthorized External Access.” In special conditions written for the Mitsubishi Model MRJ-200 airplane, the JCAB addresses, in one special conditions document, both internal and external electronic-system security protection for these novel airplane-digital-network design features. The FAA reviewed the proposed JCAB special conditions and determined that they are equivalent in all material respects to the separate internal and external electronic-system security protection special conditions the FAA typically issues, and has issued, to applicants. Therefore, in these special conditions, the FAA also is issuing one special conditions document, for both internal and external electronic-system security protection, to harmonize the FAA special conditions to the JCAB-issued special conditions, thereby minimizing differences between the certificating authority and the validating authority certification bases. The resultant combination of internal and external electronic-system security protection special conditions in this document are identical in all material respects to FAA special conditions issued for the same separate topics.

The existing regulations and guidance material did not anticipate these types of airplane electronic-system architectures. Furthermore, 14 CFR regulations, and the current electronic-system safety assessment policy and techniques, do not address potential security vulnerabilities, which could be exploited by unauthorized access to airplane networks, data buses, and servers. Therefore, these special conditions ensure that

the security (i.e., confidentiality, integrity, and availability) of airplane systems is not compromised by unauthorized wired or wireless electronic connections.

These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

Applicability

As discussed above, these special conditions are applicable to the Mitsubishi Model MRJ-200 airplane. Should Mitsubishi apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, these special conditions would apply to that model as well.

Conclusion

This action affects only a certain novel or unusual design feature on one model of airplane. It is not a rule of general applicability.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

Authority Citation

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(f), 106(g), 40113, 44701, 44702, 44704.

The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for Mitsubishi Model MRJ-200 airplanes.

1. The applicant shall ensure security protection of the systems and networks of the aircraft from access by unauthorized sources, both internal and external, if the systems' corruption (including hardware, software, and data) by an inadvertent or intentional attack would impair safety.
2. The applicant shall ensure that the security threats to the aircraft, including those possibly caused by maintenance activity or any unprotected connecting equipment and devices, or from the on-board passengers, are identified and assessed, and risk-mitigation strategies are implemented to protect the aircraft systems and networks from all adverse impacts on safety.
3. The applicant shall establish appropriate procedures for security measures against aircraft systems and networks to be maintained following changes to the type certificated design.

Issued in Des Moines, Washington, on August 13, 2019.

Mary A. Schooley
Acting Manager, Transport Standards Branch
Policy and Innovation Division
Aircraft Certification Service
[FR Doc. 2019-17695 Filed: 8/16/2019 8:45 am; Publication Date: 8/19/2019]